Joint Stakeholders Comments on
Standards for Commercial Package Air Conditioners and Heat Pumps
Docket EE-RM/STD-01-375

November 11, 2004

Air-Conditioning and Refrigeration Institute
American Council for an Energy-Efficient Economy
Aaon Heating and Cooling Products
Alliance to Save Energy
Appliance Standards Awareness Project
Armstrong Air Conditioning Inc.
California Energy Commission
Carrier
Daikin
Lennox International Inc.
Mammoth, Inc.
McQuay International
Natural Resources Defense Council
Nordyne Inc.
Northeast Energy Efficiency Partnerships
Rheem Manufacturing Company
Sanyo Fisher (USA) Corp.
Trane/American Standard
York International

A. Introduction and Overview

The Joint Stakeholders are pleased to present to the Department of Energy (DOE) the results of successful discussions which resulted in a recommendation ("the Joint Proposal" or "joint proposed standard") for an energy conservation standard for commercial unitary air conditioners and heat pumps, both split and package systems, from 5-20 tons of cooling capacity which meets the requirements of the Energy Policy Act of 1992. Effective January 1, 2010, the agreed upon minimum efficiency standards are as follows:

Air-Cooled Products	**Efficiency Standards**
≥ 65 - < 135 kBtu/h	11.2/11.0 EER for A/C 11.0./10.8 EER for HP 3.3 COP @47^{o}F for HP
≥ 135 - < 240 kBtu/h	11.0/10.8 EER for A/C 10.6/10.4 EER for HP

3.2 COP @47°F for HP

Note: Where two EERs are listed, the first refers to systems with electric resistance heat or no heating, and the second refers to systems with all other heating system types that are integrated into the unitary equipment.

According to DOE's ANOPR analyses, the proposed standard would save approximately 0.79 quads of primary energy by 2035. Under the Joint Proposal, the EER of commercial package air conditioners and heat pumps would range from 10.4 to 11.2 depending on equipment capacity and the type of heating system in the unit (see Attachment 1, regulatory language). Under the Joint Proposal, heat pumps will have a COP at 47 degrees F of at least 3.2 or 3.3, varying with system cooling capacity. The various categories of equipment in the Joint Proposal, and the variations in efficiency between categories, generally come from ASHRAE standard 90.1-2001. The ASHRAE 90.1 standard was the foundation for this equipment's current federal efficiency standards. Under the legislation establishing standards for this equipment, the ASHRAE 90.1 standard is also generally the foundation for updates to the federal standards.

The Joint Stakeholder agreement also includes several other features that increase energy savings and reduce regulatory burdens. First, the stakeholders have agreed to specific standards for equipment with cooling capacity of 20-63 tons, products that are not presently covered by federal standards. Addition of these products will increase savings from the standards program. Second, the agreement includes a provision that will allow DOE to begin future rulemakings on these products if ASHRAE does not revise standards on these products within a five-year period. This provision could increase savings from the program by reducing contention over adoption of ASHRAE standard levels and also by providing a backstop to the ASHRAE process. Both of these provisions will require Congressional action and the Joint Stakeholders have agreed to jointly advocate these legislative changes.[1] Third, as part of this agreement, states and advocacy organizations have agreed that until legislation or regulatory action pre-empts state standards, future state standards activity will be fully consistent with the standard levels and effective dates contained in this agreement. This coordination will help to reduce the burden on manufacturers of state standards.

There are several notable benefits and features of this joint standards agreement. By proposing a standard with an effective date of 2010, the joint proposed standard coincides with the date at which most HCFC refrigerants will be phased out under federal law and regulations. By having the change in refrigerant and the new efficiency standards coincide, impacts on manufacturers are lessened. Also, manufacturers will have at least five-years to prepare for these major changes. A preparation period of this length is particularly important in light of the disruptions many of these same manufacturers are facing as they prepare for new 2006 standards on residential central air conditioners and heat pumps. With this timing, the significant

[1] However, it should be noted that in a letter dated July 7, 2004 on the Department of Energy's *FY 2005 Priority-Setting Summary Report and Action*s *Proposed,* ARI laid out a legal argument supporting the position that under EPACT, DOE has the statutory authority to regulate commercial package air conditioner equipment from 20-63 tons.

investment and redesign can be addressed after the major 2006 changes are implemented, thus allowing time and resources for manufacturers to innovate and find and optimize products and processes to meet the standard. The levels of the proposed standard have been chosen in order to maintain diversity of designs, approaches and engineering flexibility. Attachment 1 is proposed regulatory language agreed to by the Joint Stakeholders for modification to 10 C.F.R 431.97. This proposal is fully consistent with the requirements of Energy Policy Act of 1992. The Joint Stakeholders believe the standards in this joint proposal represent the maximum standards which are technological feasible and economically justified.

B. The Joint Stakeholders to the Agreement

The Air-Conditioning and Refrigeration Institute (ARI) is the national trade association representing manufacturers of more than 90 percent of North American produced central air conditioning and refrigeration equipment. Of particular note, ARI establishes product performance ratings standards for industry equipment. The association also administers voluntary performance certification programs by testing products to verify and correct performance ratings. The commercial air conditioner manufacturers active in the discussions and which support the agreement are listed at the end of these comments. ARI has been active in the national appliance standards program since its inception.

The American Council for an Energy Efficient Economy (ACEEE) is a non-profit organization dedicated to advancing energy efficiency as a means of promoting economic prosperity and environmental protection. ACEEE was very involved in the development, negotiation and passage of NAECA and all previous and subsequent appliance standards rulemakings.

The Alliance to Save Energy (ASE) is a non-profit coalition of prominent business, government, environmental and consumer leaders who promote the efficient, clean use of energy worldwide to benefit the environment, the economy and national security. For more than 20 years, the Alliance has worked to make the benefits of energy efficiency understood and practiced in the United States and around the world. The Alliance has been active in the development and passage of energy standards laws and appliance standards proceedings.

The Appliance Standards Awareness Project (ASAP) works with grassroots groups across the country to educate the public about federal and state appliance standards programs. ASAP has worked on appliance standards issues since its founding in 1998. ASAP was a signatory to previous negotiated standards on ballasts and clothes washers and has also been an active participant in recent DOE rulemakings.

The California Energy Commission (CEC) developed the nation's first mandatory appliance efficiency standards and has been involved in many major legislative and regulatory efficiency standards actions at the national level. Due to power shortages in the state, the Commission is very interested in commercial packaged air conditioning equipment standards.

Natural Resources Defense Council (NRDC) is a national environmental organization

with over 550,000 members and contributors. NRDC has promoted energy efficiency at the state, regional, national and international level for over 20 years and has participated in DOE appliance efficiency rulemakings since 1980 and in state appliance efficiency proceedings since 1975.

Northeast Energy Efficiency Partnerships, Inc. is a regional non-profit organization founded in 1996 whose mission is to promote energy efficiency in homes, buildings and industry in the Northeast U.S. through regionally coordinated programs and policies that increase the use of energy efficient products, services and practices, and that help achieve a cleaner environment and a more reliable and affordable energy system. NEEP works by recognizing and engaging concerned and capable organizations and businesses in cost-effective regional initiatives designed to increase energy efficiency.

American Standard is a global manufacturer with market leading positions in three businesses: air conditioning systems and services, sold under the Trane® and American Standard® brands for commercial, institutional and residential buildings; bath and kitchen products, sold under such brands as American Standard® and Ideal Standard®; and vehicle control systems, including electronic braking and air suspension systems, sold under the WABCO® name to the world's leading manufacturers of heavy-duty trucks, buses, SUVs and luxury cars. The company employs approximately 60,000 people and has manufacturing operations in 29 countries. American Standard is included in Standard and Poor's 500 index.

Carrier is the world's largest manufacturer of air conditioning, heating and refrigeration equipment with 2003 revenues of $9.2B. The company conducts business in 172 countries with 40,000 employees and 80 global manufacturing centers. Carrier is a United Technologies company based in Farmington, CT.

Daikin has more than 70 years experience in manufacturing advanced, high quality equipment including air conditioning for residential, commercial and industrial applications. The company is actively engaged in research into a wide spectrum of science and discipline, from mechanics and electronics to chemicals and fluorocarbons. We strive to increase HVAC related efficiencies by integrating new technologies such as variable speed compressor technology utilizing rotary, swing vane rotary, scroll compressors, heat recovery and zoning systems.

Lennox Industries Inc (Dallas, Texas) and Armstrong Air Conditioning, Inc. (Bellevue, Ohio), subsidiaries of Lennox International Inc., are major suppliers of equipment to the heating ventilating and air conditioning industry in North America. Lennox and Armstrong offer full lines of residential products including gas, oil and electric furnaces; split system cooling units; heat pumps and package units, and commercial unitary air conditioning products ranging from 2 to 30 tons.

Mammoth Inc. has been a leader in custom HVAC for more than 65 years committing resources to the development of innovative products that meet the needs and demands of the ever changing HVAC market. Located in Chaska, Minnesota, each Mammoth unit is crafted to

reduce energy consumption and maximize usable building space, while improving indoor air quality.

McQuay International, headquartered in Minneapolis, MN, is a global leader in the design, manufacture, distribution and service of commercial, institutional and industrial HVAC systems. Over three thousand employees in five US facilities produce and support air and water cooled chillers, indoor and outdoor air handlers, water source heat pumps, PTAC units, fan coils and packaged rooftop systems. McQuay operates twelve manufacturing facilities worldwide.

NORDYNE Inc. manufactures heating and cooling products for the residential, manufactured housing and light commercial markets and markets them under the Maytag, Frigidaire, Tappan, Westinghouse, Philco, Kelvinator, Gibson, Intertherm, Miller and Mammoth brand names. The company is based in O'Fallon, Missouri and currently manufactures products in factories in Missouri and Western Tennessee and employs approximately 2,000 people. NORDYNE distributes and sells products nationwide and exports them to markets in Asia, the Mideast and Latin America.

Rheem® is a privately held manufacturing company that began operation in 1927. Today, Rheem is a leading North American producer of water heaters, central warm air furnaces and air conditioners, and swimming pool heaters and commercial boilers. The company's products are used for residential and commercial applications and operate on a variety of fuels. Our air conditioning and heating products are all designed and manufactured within the U. S., predominately for the North American market. We have full lines of split system and packaged products ranging from 1.5 to 25 tons and central gas and oil furnaces from 78 to 92+ AFUE.

Sanyo Fisher Company, established in 1961, is located in Chatsworth, California where it promotes the marketing and sales of a wide variety of consumer and commercial products. Commercial products include heating and air conditioning equipment, LCD projectors and security video equipment.

YORK International is the largest independent supplier of heating, ventilation, air-conditioning, and refrigeration (HVAC&R) systems and solutions in the United States, and a leading competitor globally. Founded in 1874, the company still maintains its corporate headquarters in York, Pennsylvania. YORK designs, manufactures, sells, and services heating, ventilation and air-conditioning systems for residential and commercial markets; gas-compression equipment for industrial processing; industrial and commercial refrigeration equipment; and compressors for residential and commercial air-conditioning, as well as refrigeration applications.

All of these groups have been stakeholders in DOE and State appliance standards, research and development, utility incentive and demand side management activities, with many of these groups active for twenty years or more. These Joint Stakeholders represent a broad spectrum of interests and points of view.

C. Rationale for Negotiations

The Joint Stakeholders entered into informal discussions on commercial package air conditioner and heat pump standards for several reasons. First, it was thought that a negotiation might resolve the standards issue and allows DOE to proceed to a proposed and final rule more quickly than through the normal, more adversarial procedures. Second, informal discussions allow stakeholders to develop creative approaches, both regulatory and non-regulatory, which are more difficult to develop and discuss in normal notice and comment rulemaking. The Joint Stakeholders believe that these goals were achieved and will be borne out in the promulgation of a rule based on the Joint Proposal and the implementation of this rule as a standard.

Secretary of Energy, Spencer Abraham, and Assistant Secretary of Energy, David Garman, both encouraged the stakeholders at several meetings and workshops to consider informal discussions which could result in a consensus agreement. The Joint Stakeholders entered into such discussions based on Section 8 of the July 1996 Process Improvement Rule, 10 C.F.R, Part 30, Subpart C, Appendix A. The rule states that the Department supports efforts by groups of interested parties to develop and present consensus recommendations on proposals for new or revised standards as an effective mechanism for balancing the economic, energy and environmental interests affected by standards. This rule states that, notwithstanding any other policy on selection of proposed standards, consensus recommendations on an updated efficiency level determined and submitted by a group that represents all interested parties would be proposed by the Department of Energy if it is determined to meet the appropriate statutory criteria.

The Joint Stakeholders proposal should weigh heavily with DOE. It indicates a consensus on standards which are currently the maximum level which is technologically feasible and economically justified.

D. The Negotiation Process

The parties' discussions commenced in the summer of 2003 and initially dealt only with 20-63 ton equipment, equipment which some states have begun to regulate. Consensus could not be reached in 2003 but communications continued. In March, 2004 discussions resumed and were expanded to include 5-20 ton equipment. Including both 5-20 ton and 20-63 ton equipment together allowed the different parties to make compromises that resulted in this overall agreement. Agreement was reached in September 2004, and the Joint Stakeholder announced the consensus at the Department's September 30, 2004 ANOPR workshop on commercial air conditioning equipment.

Discussions were held and empirically-based proposals were made, relying on data and analysis being developed and refined by DOE and its contractors, Lawrence Berkeley National Laboratory and Navigant, Inc. The DOE analyses are in the public record and provide the necessary technical support for the proposal. Before the discussions began, DOE had gathered technical and economic data and drafted engineering and economic analyses. These data and analyses were considered and used by the parties in developing the Joint Proposal. While

recognizing that the DOE analysis may be considered flawed in certain respects, the Joint Stakeholders agree that the analysis ultimately prepared by the Department is useful as a reference and is sufficient for the purpose of justifying the standards in the Joint Proposal. The Joint Stakeholders proposal is supported and economically justified by these analyses, applying the relevant criteria in EPACT. The discussions and the Joint Proposal, however, specifically relate only to the commercial package air conditioner and heat pump rulemaking and create no substantive precedent for other DOE appliance standards actions.

E. The Joint Stakeholders Proposal

The regulatory language of the Joint Stakeholders proposal is appended as Attachment 1. The proposal contains two major components – effective date and standard levels.

As noted above, the proposed effective date, Jan. 1, 2010, is designed to coincide with the change in refrigerant for this equipment mandated by the Clean Air Act, allowing manufacturers to retool only once to comply with these two regulatory changes. We note that if a contested standards rulemaking proceeded on the schedule contained in DOE's rules, the rulemaking would not be completed until early in 2006 and the standard would take effect in early 2010. Thus, the Joint Stakeholders proposal allows a modestly earlier effective date. Furthermore, if DOE can expeditiously adopt this proposal, manufacturers will have more time than normal to prepare.

The proposed standards are designed to achieve substantial savings relative to the current federal standards, and significant savings relative to the current ASHRAE 90.1-2001 standard. The Joint Stakeholders plan to ask ASHRAE to revise 90.1 to incorporate the proposed standards, so that that federal and ASHRAE standards are in alignment. While the proposed standards will result in substantial energy savings, these standards also allow a little "headroom" for voluntary programs such as Energy Star to promote moderately higher levels of performance. As noted by DOE in its analysis of residential air conditioners and heat pumps, many manufacturers of this equipment earn an important share of their profits from high-efficiency value-added units. Therefore, some "headroom" for value-added sales is critical to prevent substantial adverse impacts on manufacturers and the proposed agreement provides this headroom.

The Proposal is very similar to the EER 11.0 level examined by DOE, but we have modestly moved some levels up or down to account for differences in equipment size and capabilities. These adjustments are similar to those in ASHRAE 90.1-2001. Specifically, we looked at the analyses contained in DOE's Technical Support Document (TSD), as well as the findings from the Independent Review Team (IRT) assembled by DOE to review the methodology and assumptions used in the TSD. The IRT identified several deficiencies with some of the analyses that may have overestimated the justification for high EER levels. We adjusted for these deficiencies and determined that 11.2 EER was economically and technologically justified for equipment between 65,000 and 135,000 Btu/hour of cooling capacity. For equipment with a heating element other than electric, we allocated a 0.2 EER deduction to account for the additional pressure drops of the heating section. This 0.2 EER

deduction has been used by ASHRAE 90.1 since 1989. The same logic was used for equipment with cooling capacities between 135,000 and 240,000 Btu/hour., Regarding heat pumps, given that DOE did not collect data and did not conduct a detailed analysis on this type of equipment, we established the minimum EER and COP levels by following a methodology similar to that used by the ASHRAE 90.1 committee for setting heat pump efficiency levels based on efficiency levels for comparatively-sized air conditioners.

F. Compliance with EPACT Requirements

The Proposal comports fully with the standards setting criteria in EPACT and has been set to achieve the maximum improvement in energy efficiency that is technologically feasible and economically justified as required by Section 342 of EPCA, 42 U.S.C. 6313. DOE had established tentatively a maximum level which it considered to be "max tech" and the parties applied other technological feasibility and economic justification factors to that level to arrive at the standard levels. The Proposal goes far beyond EPACT's prohibition against standards which increase maximum energy use of a covered product. 42 U.S.C.6295(o)(1). The proposal makes use of current DOE and industry test procedures and no test procedure amendments are needed to implement the proposal.

The proposal is supported by DOE's economic analyses. The Joint Stakeholders or subgroups thereof may not agree with all data, analyses or conclusions contained in these analyses which may have been subject to additional refinement if the rulemaking had gone forward. For example, the analysis was based on R-22 refrigerant and applied to 410A assuming no degradation of efficiency. However, the Joint Stakeholders agree that the economic analyses generally support the Joint Proposal. The Joint Proposal, if promulgated as a standard, results in benefits that exceed the burdens imposed to the greatest extent practicable taking into account the desirability of mitigating manufacturer burdens and allowing for marketplace innovation. 42 U.S.C. 6295(o)(2)(B)(i).

Below, the Joint Stakeholders detail the ways in which the Joint Proposal meets EPACT's test of being the most stringent standard level which is clearly technically feasible and economically justified, taking into account the societal, consumer and manufacturer interests set forth in 42 U.S.C. 6313 (a)(6). In describing these justifications, we focus on DOE's analysis for an 11.0 EER standard as this is the level examined by DOE that most closely aligns with the Joint Stakeholders proposal. As noted above, the Joint Stakeholders have taken the general EER 11.0 level and adjusted efficiencies up and down modestly depending on equipment size and configuration in order to balance the costs and benefits across the range of equipment sizes and benefits. Still, the EER 11.0 level in DOE's analyses provides a reasonable proxy for evaluating the impacts of the Joint Proposal.

Furthermore, the benefits and justification for the standard increase significantly to the extent that the agreed upon standards for 20-63 ton equipment are also taken into account.

1. Economic Impact to Consumers

The Joint Stakeholders believe that the Joint Proposal's economic effect on consumers is justified and supported by the Department's analysis. 42 U.S.C. 6295(o)(2)(B)(i)(I). According to DOE's analysis, a standard of about EER 11 will result in net economic savings to consumers over the analysis period of $2.05 billion with a 7% real discount rate and $5.55 billion with a 3% real discount rate (2001 $). This analysis included, consistent with the process rule, consideration of variations in energy usage and energy prices between consumers and regions. In accordance with the process rule, DOE may need to run additional sensitivity analyses using several energy price forecasts.

2. Economic Impact on Manufacturers

The Joint Stakeholders agree that the Joint Proposal will have acceptable impacts on manufacturers. This conclusion is endorsed by all of the manufacturers signing this agreement, including both large and small manufacturers. All manufacturers now produce some models that meet the proposed standards. Manufacturers will need to invest to improve efficiency of their remaining models but much of this investment will coincide with the investment needed to change refrigerants. Furthermore, the fact that manufacturers have more than five years to prepare for the standards, and the fact that the Joint Proposal preserves some headroom for value-added products, helps to mitigate the burden on manufacturers.

However, while the impacts on manufacturers are "acceptable" at about the EER 11.0 level, at higher efficiency levels significant adverse economic impacts on manufacturers will occur. Investments will be higher for higher levels of efficiency, investments that may be difficult for manufacturers to recoup. Probably most importantly, if the standards are set at a higher level such as EER 11.5, it will be very difficult for manufacturers to produce value-added equipment that exceeds the federal standard. As noted above, DOE has previously found that many manufacturers count on sales of value-added units for an important share of their profits. Without these value-added units, many manufacturers would suffer significant adverse consequences.

The Joint Stakeholders include virtually all manufacturers of equipment covered by this standard. Therefore, the Joint Stakeholders believe that the collective statement of manufacturers that the economic impacts of the Proposal are acceptable should be sufficient to address the Economic Impact on Manufacturers criteria and that DOE does not need to conduct a more detailed manufacturer impact assessment. We believe that a more detailed analysis would be an unnecessary use of DOE and manufacturer resources and time. While we strongly urge that DOE not conduct its detailed manufacturer impact assessment, if DOE decides it needs to prepare such an assessment, the Joint Stakeholders are prepared to fully cooperate.

3. Life Cycle Costs

The benefits of the Joint Stakeholder Proposal savings and operating costs over the average estimated life of the covered product exceed the burdens of increase in price to the greatest extent practicable. 42 U.S.C. 6313(a)(6). DOE's analyses discuss two typical unit sizes – 7.5 and 15 tons. The following is a discussion of both of these representative sizes.

Consumers who purchase a 7.5 ton unit with a gas-heating module (the most common configuration) will need to have an EER of 11.0 under our proposal. According to DOE's analysis, the average consumer will save $533 on a discounted life-cycle cost basis with the proposed standard. Also, 93% of consumers who buy commercial package air conditioners of this size during the analysis period will enjoy a net gain of some magnitude. In other words, for 93% of those who buy new units, the additional price of the unit will be covered by the savings, and for the remaining 7%, the costs of the new product will exceed the discounted savings over the life of the product.

Consumers who purchase a 15 ton unit with a gas-heating module will need to have an EER of 10.8 under our proposal. According to DOE's analysis, an average consumer will save about $2,200 under the Joint Proposal. Also, 97% of consumers who buy these units during the analysis period will enjoy a net gain. Put another way, for 97% of those who buy a new unit, the additional price of the unit will be covered by the savings, and for the remaining 3%, the increased costs of the new product will exceed the discounted savings over the life of the product.

According to DOE's analyses, an EER level of 11.5 would have slightly lower life-cycle costs for this equipment. However, as discussed near the end of these comments, when the various factors DOE must consider are taken as a whole, an EER level of 11.5 is not economically justified.

4. Energy Savings

The Joint Stakeholders Proposal would result in total projected energy savings whose benefits exceed burdens to the greatest extent practicable. The Joint Stakeholders utilized the DOE developed National Energy Savings (NES) spreadsheet, which forecast energy savings over the period of analysis for candidate standards relative to a base case. The energy savings provided by the Joint Proposal are very significant. DOE estimates savings of approximately 0.8 quads of cumulative prime energy savings by 2035 for equipment from 5-20 tons. ACEEE estimates somewhat higher savings – 1.1 quads over the 2010-2030 period. Additional energy will be saved by 20-63 ton equipment covered by the Joint Stakeholder agreement. DOE, in its priority-setting process, estimated 0.25 quads of savings by 2035 from an EER 10 standard for 20-63 ton equipment (*Appendix A, FY2005 Technical Support Document*, p. 16-5).

5. Lessening of Utility or Performance or Availability of Products

The Joint Stakeholders Proposal will provide no significant lessening of utility or performance or availability of the covered products as prohibited by EPACT under the so-called "safe harbor" exception. 42 U.S.C. 6313 (a)(6). The Joint Proposal was specifically designed to maintain a diversity of designs and products and utilities in the marketplace for commercial package air conditioners and heat pumps and therefore deals with utility, performance, and availability-related concerns that could have resulted if the standard were set at a different level and/or at a different effective date.

6. Impact of Lessening of Competition

The Joint Stakeholders believe the Proposal would not support a Department of Justice determination that the standard would lead to the likelihood of reduced competition. 42 U.S.C. 6313 (a)(6). The Proposal was developed in consultation with large and small manufacturers and has been designed to mitigate any negative competitive impacts. The Proposal is not expected to limit competition.

Some models that meet the proposed standard are marketed today. Appendix 2 (to be submitted shortly) contains a list of current manufacturers and models that meet the proposed standard, indicating the range of choices currently available. When the standard takes effect, we expect that many more models will be offered as manufacturers upgrade or replace current models that do not meet the proposed standard.

Finally, we do not expect the proposal to have any impact on the availability of refrigerants. Most equipment covered by this agreement now uses R-22 refrigerant, but in order to comply with federal law and EPA regulations that take effect in 2010, most manufacturers are planning to switch to R-410A. This switch will happen irregardless of whether the Proposal is adopted and thus the Proposal will not have an impact on refrigerant choice. Furthermore, there are currently several suppliers of R-410A, including ARKEMA, Dupont and Honeywell and thus there are no significant concerns about refrigerant availability.

7. Need of the Nation to Conserve Energy

Enhanced energy efficiency improves the nation's energy security, strengthens the economy and reduces the environmental impact of energy production. The energy savings from the Joint Proposal will result in reduced emissions of CO2 and NOx. ACEEE estimates that the Joint Proposal will reduce carbon dioxide emissions in 2020 by about 3.85 million metric tonnes and will also reduce NOx emissions in 2020 by about 2.66 thousand metric tonnes. Carbon dioxide and NOx savings will gradually increase over the 2010-2025 period, and thus cumulative reductions by 2035 will be more than 20-times greater than these annual savings figures. These savings do not include 20-63 ton equipment which would account for another 1.04 million metric tonnes of reductions in carbon dioxide emissions in 2020 and 0.75 thousand tonnes of NOx in 2020.

8. Other Factors

The Joint Stakeholders Proposal will result in significant reductions in peak electrical demand, helping to address power reliability problems linked to peak demand. ACEEE estimates that these standards will reduce peak electric demand by about 5,800 MW in 2020, and even more by 2025 when most of the pre-standard stock will be replaced. The 5,800 MW savings are equivalent to 19 typical new power plants of 300 MW each. ACEEE estimates that the agreement on standards for 20-63 ton equipment will save an additional 1,600 MW in 2020.

The Joint Stakeholders Proposal is consistent with the Department's process improvement rule. The Proposal comports particularly with Section 8 of the Rule, which encourages efforts by groups of interested parties to develop and present consensus recommendations on proposals for newly revised standards.

9. Balancing the Different Factors

Under federal law and DOE regulations, DOE needs to set the new standard at the maximum level of energy efficiency that is technically feasible and economically justified. DOE has determined that EER 12 is the maximum level that is technically feasible for this equipment. Such a level would result in substantial energy savings (1.09 quads according to DOE's analysis) and would produce average life-cycle cost savings to consumers of $399 for 7.5 ton equipment and $2,027 for 15 ton equipment. However, a standard at this level would result in a substantial cost increase relative to current equipment – e.g. a consumer cost increase of about $847 for a 7.5 ton unit and about $1672 for a 15-ton unit according to DOE's analysis. These cost increases amount to about an 18% increase over the base case cost and are significant enough that they could decrease unit sales and adversely affect manufacturer cash flow and profits. In addition, standards at the EER 12 level would likely have significant adverse economic impacts on manufacturers since it would be very difficult to market higher-efficiency value-added equipment that provide a significant portion of their profits (currently no major manufacturer produces equipment at the EER 12 level, let alone beyond this level). Also, a standard at this level would be very controversial and would likely take several years of a contentious rulemaking to set, likely causing lost energy savings because the new standard would not be finalized in time to have a Jan. 1, 2010 effective date. Furthermore, such a contentious DOE rulemaking would take resources that could be used for other equipment efficiency standards rulemakings, delaying the setting of these standards and the energy savings that could be achieved. For these reasons, we believe that an EER level of 12 is not economically justified and should be rejected.

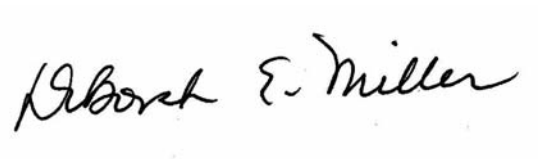
The next level DOE examined was EER 11.5. This standard would save almost as much energy as the EER 12 standard – 1.02 quads. It would also produce even greater lifecycle cost savings to consumers -- $598 for a 7.5 ton unit and $2359 for a 15 ton unit. However, a standard at this level would still result in substantial increases in equipment cost -- $456 for a 7.5 ton unit and $956 for a 15 ton unit, high enough that sales and profits could be adversely affected. At the 11.5 EER level it would still be difficult for manufacturers to produce higher-efficiency value-added products since the very best products on the market today are generally at about the 11.5

EER level. To successfully differentiate value-added products, manufacturers generally target a full EER point above the standard. Since product differentiation at the 11.5 EER level would be very difficult, manufacturer profits are likely to suffer. An 11.5 EER standard would be controversial and thus take significant time and resources, resulting in lost savings from delayed implementation of this and other standards. For these reasons, we believe that an EER level of 11.5 is not economically justified and should be rejected.

This leaves the EER 11.0 level, as represented by the Joint Proposal. This standard will save 0.79 quads according to DOE's analysis, a substantial level of energy savings. The life cycle cost savings to consumers are also substantial -- $533 for a 7.5 ton unit and $2199 for a 15 ton unit, nearly as large as for an 11.5 EER standard. A standard at this level would result in more modest increases in equipment cost -- $216 and $521 respectively according to the Department's technical support document. These cost increases are small enough that they are less likely to have significant impacts on sales. Furthermore, an EER 11 standard will allow manufacturers to produce value-added products at about the EER 12 level, which will present technical and economic challenges, but stands a good chance of being feasible. Thus, at the EER 11 level, adverse manufacturer impacts are likely to be substantially mitigated. Finally, the broad consensus in support of this standard level will allow DOE to move more quickly to a final rule, avoiding lost energy savings and potentially allowing DOE to speed up other rulemakings. For these reasons, the Joint Stakeholders submit that a standard at about the EER 11.0 level is technically feasible and economically justified. We strongly urge DOE to set such a standard with dispatch.

G. Conclusion

The Joint Stakeholders recommend the Department issue a proposed and Final Rule to amend the standards for commercial package air conditioners and heat pumps in accordance with their proposal in Attachment 1. We recommend that the Department quickly issue a Notice of Proposed Rulemaking based on the Proposal and issue a final rule by mid-2005. Alternatively, the Department should consider a "direct final rule" that provides other interested parties an opportunity to comment before the rule takes effect.



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Aaon Heating and Cooling Products
Alliance to Save Energy
Appliance Standards Awareness Project
Armstrong Air Conditioning Inc.
California Energy Commission
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Mammoth, Inc.
McQuay International
Natural Resources Defense Council
Nordyne Inc.
Northeast Energy Efficiency Partnerships
Rheem Manufacturing Company
Sanyo Fisher (USA) Corp.
Trane/American Standard
York International

A copy of these comments signed by all of the above organizations will be submitted shortly.

Attachment 1

Section 431.703 of Subpart Q is amended to read as follows:

431.703 Small and Large Commercial Package Air Conditioning and Heating Equipment.

Each commercial air-cooled air conditioner and heat pump manufactured on or after January 1, 2010 must meet the applicable minimum energy efficiency standard level(s) set forth in Tables 1 and 2 of this section.

Table 1 - Minimum Cooling Efficiency Levels

Product	Category	Cooling Capacity	Subcategory	Required Minimum Efficiency Level[1]	Effective Date
Small Commercial Package Air Conditioning and Heating Equipment	Air-Cooled	≥ 65,000 Btu/h and < 135,000 Btu/h	Air Conditioners	EER: 11.2[2]	1/1/2010
			Heat Pumps	EER: 11.0[2]	1/1/2010
Large Commercial Package Air Conditioning and Heating Equipment	Air-Cooled	≥ 135,000 Btu/h and < 240,000 Btu/h	Air Conditioners	EER: 11.0[2]	1/1/2010
			Heat Pumps	EER: 10.6[2]	1/1/2010

1 All EER values must be rated at 95°F outdoor dry-bulb temperature for air-cooled products.
2 Deduct 0.2 from the required EER for units with heating sections other than electric resistance heat.

Table 2- Minimum Heating Efficiency Levels

Product	Category	Cooling Capacity	Subcategory	Required Minimum Efficiency Level[3]	Effective Date
Small Commercial Package Air Conditioning and Heating Equipment	Air-Cooled	≥ 65,000 Btu/h and < 135,000 Btu/h	Heat Pumps	COP: 3.3	1/1/2010
Large Commercial Package Air Conditioning and Heating Equipment	Air-Cooled	≥ 135,000 Btu/h and < 240,000 Btu/h	Heat Pumps	COP: 3.2	1/1/2010

3 All COP values must be rated at 47°F outdoor dry-bulb temperature for air-cooled products